JEE Main 2026 April 4 Shift 2 Chemistry

Question Paper

Conducted by National Testing Agency (NTA)

General Instructions

(i) **Duration:** The total duration of the examination is 1 hours (60 minutes).

(ii) **Total Marks:** The complete Chemistry paper carries a maximum of 100 marks.

(iii) **Structure:** The paper consists of two sections:

- **Section A:** 20 Multiple Choice Questions (MCQs).
- **Section B:** 5 Numerical Value Type Questions.

(iv) **Compulsory Questions:** All 25 questions are compulsory.

(v) Each question has four options. Only **one** option is correct.

(vi) **Correct Answer:** +4 marks.

(vii) **Incorrect Answer:** −1 mark (Negative marking).

(viii) **Unanswered/Marked for Review:** 0 marks.

Chemistry Section - A

1. The correct order of total number of atoms present in

(A) 2 moles of cyclohexane

(B) 684 g of sucrose

(C) 90.8 L of dihydrogen at STP

is:

(A) C > A > B

(B) C > B > A

(C) B > C > A

(D) B > A > C

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2. The species having identical radii according to the Bohr's theory are:

A. H (first orbit)

B. He^{+} (first orbit)

C. He^{+} (Second orbit)

D. Li^{2+} (first orbit)

E. Be^{3+} (Second orbit)

Choose the correct answer from the options given below:

(A) A and C Only

(B) A and E Only

(C) B and E Only

(D) C and D Only

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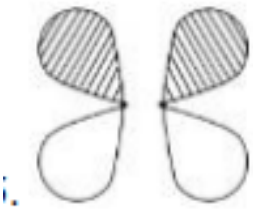
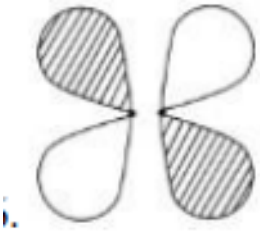
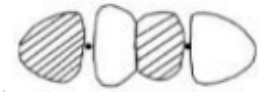
3. Which of the following pictorial diagram most correctly represents the π (π - antibonding) molecular orbital between two atoms if the internuclear axis is taken to be in the z-direction (z-axis →)?

(A)

(B)



(C) 

(D) 

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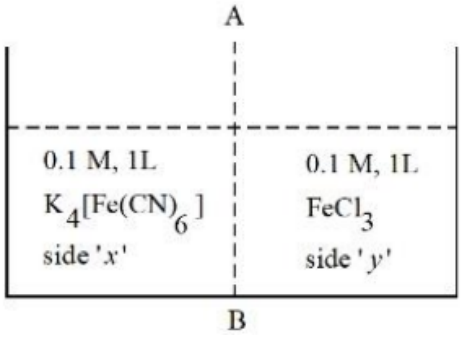
4. At 27°C, 0.1 M, 1 L $K_4[Fe(CN)_6]$ aqueous solution and 0.1 M, 1 L $FeCl_3$ aqueous solution are placed in a container separated by a semi permeable membrane AB. Assume complete dissociation of both the solutes. Which of the following statement is correct?



(A) Blue color is formed on both sides.

(B) Ionic solutes in aqueous solution can pass through semi-permeable membrane.

(C) Solution on side 'y' is hypotonic.

(D) To cause the reverse flow of solvent during osmosis, external pressure (any value) should be applied to side 'x'.

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5. 20 mL of a solution of acetic acid required 28.4 mL of 0.1 M NaOH for its neutralization. A solution (X) was prepared by mixing 20 mL of the above acetic acid and 14.2 mL of 0.1 M NaOH solution. What is the pH of the solution (X)?
(pK_a value of acetic acid is 4.75).

(A) 7.0

(B) 4.75

(C) 3.5

(D) 4.82

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6. Match the LIST-I with LIST-II

Choose the correct answer from the options given below:

	List-I Reaction		List-II Mechanism
A.	Williamson Synthesis	I.	Electrophilic addition
B.	Friedel Craft Reaction	II.	Free radical substitution
C.	Bromination of vinyl benzene	III.	Nucleophilic substitution
D.	Chlorination of toluene in light	IV.	Electrophilic substitution

(A) A-III, B-I, C-II, D-IV

(B) A-III, B-IV, C-II, D-I

(C) A-III, B-IV, C-I, D-II

(D) A-I, B-III, C-IV, D-II

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7. The 1^{st} ionization enthalpy for Mg is +737 kJ/mol. The most probable estimated value of the 2^{nd} ionization enthalpy of Mg is _____.

(A) -906 kJ/mol

(B) -856 kJ/mol

(C) +1450 kJ/mol

(D) +590 kJ/mol

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8. The electronegativity of a group 13 element 'E' is same as that of Ge (on Pauling scale and upto one decimal point). The CORRECT statements about E^{3+} are

A. It can act as a reducing agent.

B. It can act as an oxidizing agent.

C. E^{3+} is more stable than E^{+}.

D. The standard electrode potential value for E^{3+}/E is positive.

Choose the correct answer from the options given below:

(A) A and C Only

(B) B and C Only

(C) B and D Only

(D) A and D Only

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9. Pairs of elements with the same number of electrons in their respective 4f orbital are
Atomic number: Eu-63, Gd-64, Dy-66, Ho-67, Tm-69, Yb-70, Lu-71, Hf-72

A. (Eu and Gd)

B. (Dy and Ho)

C. (Yb and Hf)

D. (Lu and Tm)

Choose the correct answer from the options given below:

(A) B and C Only

(B) A and B Only

(C) A and D Only

(D) A and C Only

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10. Consider the metal complexes $[Ni(en)_3]^{2+}$ (A), $[NiCl_4]^{2-}$ (B) and $[Ni(NH_3)_6]^{2+}$ (C). Choose the CORRECT option by considering the number of unpaired electrons present in (A), (B) and (C) respectively and the order of frequency of absorption.

(A) 2, 2, 2 and (A) > (C) > (B)

(B) 0, 2, 0 and (A) > (C) > (B)

(C) 2, 2, 0 and (B) > (C) > (A)

(D) 2, 2, 2 and (C) > (A) > (B)

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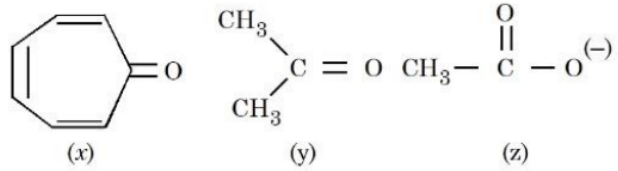
11. Consider the following molecules/species:

The correct order of carbon - oxygen double bond length is :



(x) (y) (z)

(A) $x > y > z$

(B) $y > z > x$

(C) $z > x > y$

(D) $x > z > y$

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12. Consider $|x|$ is the difference in oxidation states of Mn in highest manganese fluoride and highest manganese oxide. The ions with $|x|$ number of unpaired electrons from the following are:

A. Sc^{3+}

B. Zn^{2+}

C. V^{2+}

D. Fe^{2+}

E. Co^{2+}

Choose the correct answer from the options given below:

(A) A and B Only

(B) C, D and E Only

(C) C and E Only

(D) B and E Only

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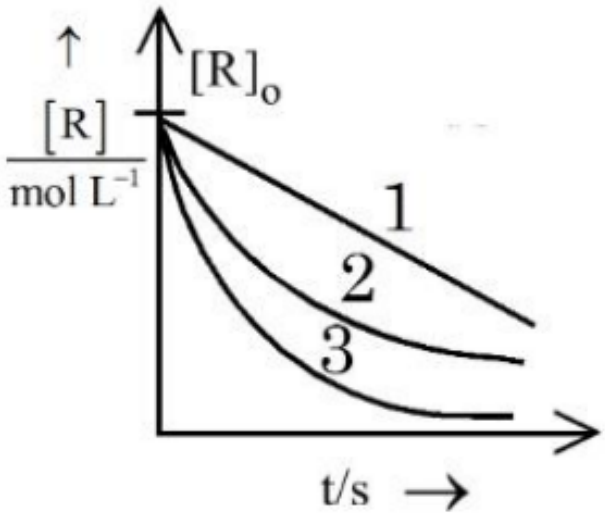
13. Consider the given graph showing variation of reactant concentration with time.
Three different reactions were started with identical initial concentration of reactants. Which of the following statement is correct?



(A) The order of all the three reactions is same.

(B) The rate constant of reaction 3 is larger than the rate constant of reaction 2 if the order of reaction is same for both.

(C) The SI unit of rate constant of reaction 1 is s^{-1}.

(D) Thermal decomposition of HI on gold surface is an example of reaction 2.

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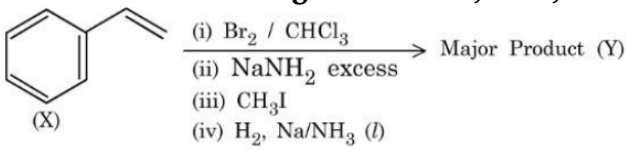
14. Compound (X) is subjected to the sequence of reactions as shown above. Molar mass of the major product (Y) formed is _____ g mol^{-1}.

(Given molar mass in g mol^{-1} C:12, H: 1, O: 16)



(A) 90

(B) 118

(C) 160

(D) 125

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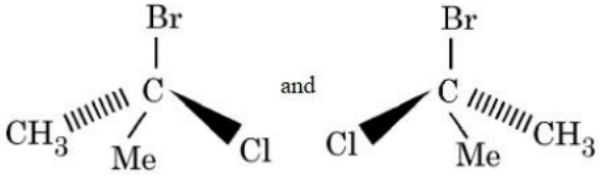
15. The following structures are Choose the correct answer from the options given below:



(A) enantiomers.

(B) identical molecules.

(C) diastereomers.

(D) meso compounds.

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16. The descending order of acidity among the following compounds is:

Choose the correct answer from the options given below:

(A) B > D > E > A > C

(B) D > B > E > A > C

(C) C > A > B > D > E

(D) D > E > B > A > C

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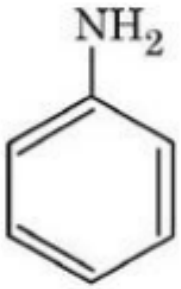
17. The strongest conjugate acid will result from:

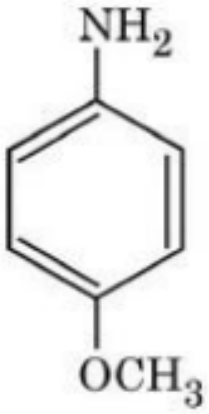
The strongest conjugate acid will result from:

Options :

(A) 0.



(B)



(C)

(D)

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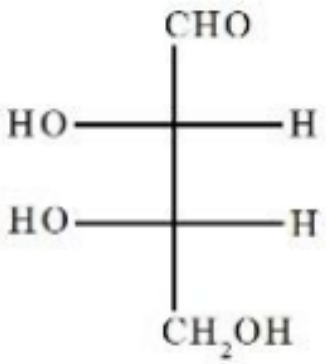
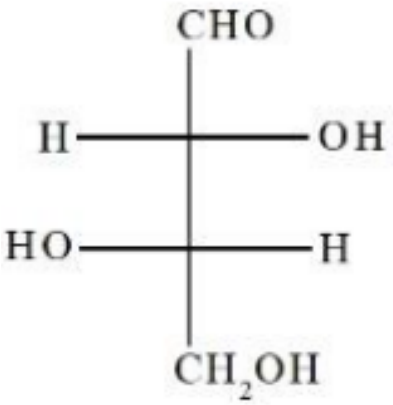
18. A D-aldotetrose on oxidation with HNO_3 resulted in optically inactive dicarboxylic acid. The structure of the D-aldotetrose is:

Options :

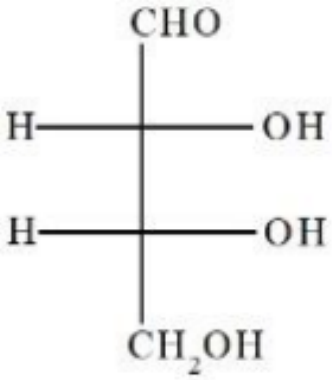


4.

(A)

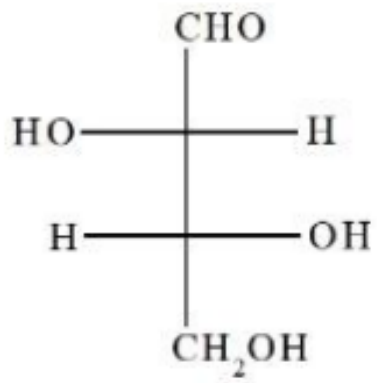


(B)



6.

(C)



(D)

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19. Among Fe^{3+}, Pb^{2+}, Cu^{2+} and Mn^{2+}, identify the one that gets precipitated out while passing H_2S in presence of NH_4OH as group reagent. The highest possible oxidation state of the corresponding metal is

Options :

(A) +3

(B) +4

(C) +2

(D) +7

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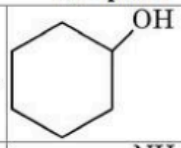
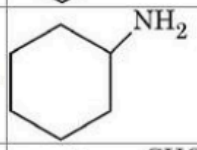
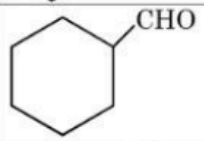
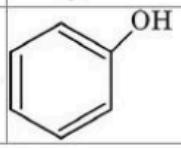
20. Match the LIST-I with LIST-II

Choose the correct answer from the options given below:

Options :

List-I Compound		List-II Test	
A.		I.	Hinsberg's reagent test
B.		II.	Phthalein dye test
C.		III.	Lucas test
D.		IV.	Tollen's test

(A) A-III, B-I, C-IV, D-II

(B) A-III, B-IV, C-I, D-II

(C) A-I, B-III, C-II, D-IV

(D) A-I, B-II, C-III, D-IV

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21. If 3.365g of ethanol (l) is burnt completely in a bomb calorimeter at 298.15 K, the heat produced is 99.472 kJ. The ΔH_f° of ethanol at 298.15 K is _____ kJ mol^{-1}. (Nearest integer)

Given: Standard enthalpy for combustion of graphite = -393.5 kJ mol^{-1}

Standard enthalpy of formation of water (l) = -285.8 kJ mol^{-1}

Molar mass in g mol^{-1} of C, H, O are 12, 1 and 16 respectively

---

22. For the following reaction at 50°C and at 2 atm pressure,

$2N_2O_5(g) \rightleftharpoons 2N_2O_4(g) + O_2(g)$

N_2O_5 is 50% dissociated.

The magnitude of standard free energy change at this temperature is x.

x = _____ J mol^{-1} [Nearest integer].

Given: R = 8.314 J mol^{-1} K^{-1}, $\log 2 = 0.30$, $\log 3 = 0.48$, $\ln 10 = 2.303$, °C + 273 = K

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23. An electrochemical cell, consist of the following two redox couples, $M^{x+}(aq)/M(s)$ (E°_{red} =

+0.15V) and $Fe^{3+}(aq)/Fe(s)$ ($E^{\circ}_{red} = -0.036$V). The cell EMF (E_{cell}) is recorded to be 0.2057V. If the reaction quotient of the electrochemical reaction is found to be 10^{-2}, then the value of x is _____.(Nearest integer)

Given : M is a p-block metal and $\frac{2.303RT}{F} = 0.059$ V

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24. For a first order reaction $A \rightarrow B$

$x =$ _____ min. (Nearest integer)

t/min	[A]/M
0	0.6500
x	0.0650
20	0.00065

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25. In sulphur estimation, 2.0×10^{-3} mol of an organic compound (X) (molar mass 76 g mol^{-1}) gave 0.4813 g of barium sulphate (molar mass 233 g mol^{-1}). The percentage of sulphur in the compound (X) is _____ $\times 10^{-1}$ % (Nearest integer)
